

CLAIMS

What is claimed is:

1. An isolated DNA molecule comprising a nucleotide sequence as set forth in SEQ ID NO:1 or the complement thereof.
2. An isolated DNA molecule comprising a nucleotide sequence as set forth in SEQ ID NO:2 or the complement thereof.
3. An isolated DNA molecule comprising at least one junction nucleotide sequence of corn event MON863 selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and complements thereof.
4. An isolated nucleic acid linking a heterologous DNA molecule to the corn plant genome in corn event MON863 comprising a sequence of from about 11 to about 20 consecutive nucleotides selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and the complements thereof.
5. An isolated nucleotide primer sequence comprising at least from about 11 to about 41 contiguous nucleotides as set forth in SEQ ID NO:3 or the complement thereof, from about nucleotide position 247 through about nucleotide position 287.
6. An isolated nucleotide primer sequence comprising at least from about 11 to about 40 contiguous nucleotides as set forth in SEQ ID NO:4 or the complement thereof, from about nucleotide position 341 through about nucleotide position 380.
7. A first polynucleotide primer sequence and a second polynucleotide primer sequence which function together in the presence of a corn event MON863 DNA template in a sample to produce an amplicon diagnostic for the corn event MON863, said first and second polynucleotide primer sequences being selected from the group consisting of SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, and SEQ ID NO:12, and the complements thereof.

8. The first and second polynucleotide primers of claim 7 wherein said first polynucleotide primer sequence comprises the sequence as set forth in SEQ ID NO:9 and said second polynucleotide primer sequence comprises the reverse complement of the sequence as set forth in SEQ ID NO:10, and wherein said amplicon comprises the sequence substantially as set forth in SEQ ID NO:3.

9. The first and second polynucleotide primers of claim 7 wherein said first polynucleotide primer sequence comprises the reverse complement of the sequence as set forth in SEQ ID NO:12 and said second polynucleotide primer sequence comprises the sequence as set forth in SEQ ID NO:11, and wherein said amplicon comprises the sequence substantially as set forth in SEQ ID NO:4.

10. The first and second polynucleotide primer sequences of claim 8 wherein said first polynucleotide primer sequence is or is complementary to a corn plant genome DNA flanking the point of insertion of a heterologous DNA sequence inserted into the corn plant genome of corn event MON863, and said second polynucleotide primer sequence is or complementary to the heterologous DNA sequence inserted into the corn plant genome of the corn event MON863, and wherein said amplicon is diagnostic for the corn plant event MON863.

11. A corn plant, wherein at least one ancestor of said corn plant is the corn event MON863 comprising a DNA molecule selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and the complements thereof.

12. A corn plant comprising at least a first and a second DNA sequence linked together to form a contiguous nucleotide sequence, wherein said first DNA sequence is within a junction sequence and comprises at least about 11 contiguous nucleotides selected from the group consisting of

(a) nucleotide position 247-287 as set forth in SEQ ID NO:3;

(b) nucleotide position 341-380 as set forth in SEQ ID NO:4;

(c) SEQ ID NO:5;

(d) SEQ ID NO:6; and

(e) the complement thereof;

wherein said second DNA sequence is within the transgene insert DNA sequence, said transgene insert DNA sequence being selected from the group consisting of SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, and the complement thereof; and

wherein said first and said second DNA sequences are useful as nucleotide primers or probes for detecting the presence of corn event MON863 nucleic acid sequences in a biological sample.

13. The corn plant of claim 12 wherein the nucleotide primers are used in a DNA amplification method to amplify a target DNA sequence from template DNA extracted from said corn plant and said corn plant is identifiable from other corn plants by the production of an amplicon corresponding to a DNA sequence comprising SEQ ID NO:1 or SEQ ID NO:2.

14. A nucleic acid detection kit for use in identifying the presence of nucleic acids of the corn event MON863 in a biological sample comprising:

- a) a probe which is or is complementary to part of a transgene DNA sequence present in the genome of the corn event MON863, said probe comprising at least about 11 consecutive nucleotides, said consecutive nucleotides being selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and complements thereof;
- b) reagents necessary for detecting the binding of said probe to said transgene DNA sequence; and
- c) instructions for use; packaged together in said kit.

15. A method of detecting the presence of corn event MON863 DNA in a biological sample, comprising the steps of:

- a) contacting said sample with a first polynucleotide primer sequence and a second polynucleotide primer sequence that function together in a nucleic acid amplification reaction the presence of a DNA template from corn event MON863 to produce an amplicon diagnostic for said corn event;
- b) performing a nucleic acid amplification reaction, thereby producing said amplicon; and
- c) detecting said amplicon.

16. The method of claim 15 wherein said amplicon comprises a nucleotide sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, and the complements thereof.

17. The method of claim 16 wherein said amplicon comprises SEQ ID NO:1, wherein said first polynucleotide primer sequence is selected from the group consisting of the SEQ ID NO:1 from about nucleotide position 1 through about nucleotide position 20, SEQ ID NO:3 from about nucleotide position 1 through about nucleotide position 267, and SEQ ID NO:9 from about nucleotide position 1 through about nucleotide position 22, and wherein said second polynucleotide primer sequence is selected from the group consisting of a sequence complementary to SEQ ID NO:1 from about nucleotide position 9 through about nucleotide position 20, a sequence complementary to SEQ ID NO:3 from about nucleotide position 266 through about nucleotide position 508, and a sequence complementary to SEQ ID NO:10 from about nucleotide position 1 through about nucleotide position 22.

18. The method of claim 16 wherein said amplicon comprises SEQ ID NO:2, wherein said first polynucleotide primer sequence is selected from the group consisting of the SEQ ID NO:2 from about nucleotide position 1 through about nucleotide position 20, SEQ ID NO:4 from about nucleotide position 1 through about nucleotide position 361, and SEQ ID NO:11 from about nucleotide position 1 through about nucleotide position 23, and wherein said second polynucleotide primer sequence is selected from the group consisting of a sequence complementary to SEQ ID NO:2 from about nucleotide position 9 through about nucleotide position 20, a sequence complementary to SEQ ID NO:4 from about nucleotide position 360 through about nucleotide position 584, and a sequence complementary to SEQ ID NO:12 from about nucleotide position 1 through about nucleotide position 22.

19. The method of claim 17 or 18 wherein said amplicon comprises a nucleotide sequence comprising at least 20 consecutive nucleotides selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, and SEQ ID NO:4.

20. A method of detecting corn event MON863 DNA in a biological sample, comprising the steps of:

- a) contacting a sample suspected of containing said DNA with a polynucleotide probe that hybridizes under stringent hybridization conditions with said DNA and that does not hybridize under stringent hybridization conditions with DNA from a control corn plant other than corn event MON863;
- b) subjecting said sample and said probe to said stringent hybridization conditions; and
- c) detecting the hybridization of said probe to the corn event MON863 DNA.

21. A biological sample derived from a corn event MON863 plant, tissue, or seed, wherein said sample comprises a nucleotide sequence which is or is complementary to a sequence selected from the group consisting of SEQ ID NO:1, and SEQ ID NO:2, and wherein said sequence is detectable in said sample using a nucleic acid amplification or nucleic acid hybridization method.

22. The biological sample of claim 21 comprising plant, tissue, or seed of transgenic corn event MON863 having seed deposited with American Type Culture Collection (ATCC) with Accession No. PTO-2506.

23. The biological sample of claim 22 wherein said sample is selected from the group consisting of an extract obtainable from the transgenic corn plant event MON863, and wherein said extract comprises one or more of the nucleotide sequences selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and the complement thereof.

24. The biological sample of claim 23 wherein said sample is selected from the group consisting of corn flour, corn meal, corn syrup, corn oil, corn starch, and cereals manufactured in whole or in part to contain corn by-products.

25. An extract derived from a corn even MON863 plant, tissue, or seed comprising a nucleotide sequence which is or is complementary to a nucleotide sequence selected from the group consisting of SEQ ID NO:1, and SEQ ID NO:2.

26. The extract of claim 25 wherein said sequence is detectable in said extract using a nucleic acid amplification or nucleic acid hybridization method.

27. The extract of claim 26 comprising plant, tissue, or seed of transgenic corn plant event MON863.

28. The extract of claim 27 wherein said sample is selected from the group consisting of corn flour, corn meal, corn syrup, corn oil, corn starch, and cereals manufactured in whole or in part to contain corn by-products.

29. A corn event MON 863 having seed deposited with American Type Culture Collection (ATCC) with Accession No. PTA-2506.

30. The corn event of claim 29, wherein the genome of said event or progeny thereof comprises a DNA molecule selected from the group consisting of SEQ ID NO:1 and SEQ ID NO:2.

31. Plant parts of the corn event of claim 30.

32. An isolated DNA molecule, wherein said DNA molecule is diagnostic for the presence of DNA from the corn event MON863, and wherein said DNA is selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, and the complement thereof.

33. A nucleotide sequence comprising a DNA sequence selected from the group consisting of SEQ ID NO:3, and SEQ ID NO:4, wherein said DNA sequence is used as the template in a DNA amplification method in which an amplicon is produced that is diagnostic for corn event MON863 DNA in a sample.

34. The nucleotide sequence of claim 33, wherein said amplicon comprises SEQ ID NO:1.

35. The nucleotide sequence of claim 33 wherein said amplicon comprises SEQ ID NO:2.

36. An isolated DNA polynucleotide primer molecule comprising at least 11 contiguous nucleotides of SEQ ID NO:3 from about nucleotide position 247 through about nucleotide

position 287, or the complement thereof, for use in detecting the presence of corn event MON863 DNA in a biological sample.

37. An isolated DNA polynucleotide primer molecule comprising at least 11 contiguous nucleotides of SEQ ID NO:4 from about nucleotide position 348 through about nucleotide position 380, or the complement thereof, for use in detecting the presence of corn event MON863 DNA in a biological sample.

38. A kit for detecting the presence of corn event MON863 DNA in a biological sample comprising a first probe molecule consisting of at least about 11 contiguous nucleotides homologous or complementary to a nucleotide sequence selected from the group consisting of SEQ ID NO:3 from about nucleotide position 247 through about nucleotide position 287 and a second probe molecule consisting of at least about 11 contiguous nucleotides homologous or complementary to a nucleotide sequence selected from the group consisting of SEQ ID NO:4 from about nucleotide position 341 through about nucleotide position 380, wherein said molecule hybridizes specifically to said nucleotide sequence under stringent hybridization conditions.

39. A method of producing a corn plant resistant to coleopteran insect infestation comprising:

- (a) sexually crossing a first parent corn plant comprising corn event MON863 DNA and a second parent corn plant that lacks said DNA, thereby producing a plurality of first progeny plants; and
- (b) selecting a first progeny plant that is resistant to coleopteran insect infestation; and
- (c) selfing said first progeny plant, thereby producing a plurality of second progeny plants; and
- (d) selecting from said second progeny plants, a plant that is resistant to coleopteran insect infestation;

wherein said second progeny plants comprise a nucleotide sequence selected from the group consisting of SEQ ID NO:1 and SEQ ID NO:2.

40. A method of detecting the presence of corn event MON863 DNA in a biological sample, the method comprising:

- (a) contacting said sample with a primer pair, which when used in a nucleic acid amplification reaction with corn event MON863 DNA produces an amplicon diagnostic for corn event MON863 DNA; and
- (b) performing a nucleic acid amplification reaction, thereby producing said amplicon; and
- (c) detecting said amplicon.

41. A method of detecting the presence of corn event MON863 DNA in a sample, the method comprising:

- (a) contacting the sample with a probe that
 - (i) hybridizes under stringent hybridization conditions with corn event MON863 DNA, and
 - (ii) does not hybridize under the stringent hybridization conditions with non-corn event MON863 DNA,wherein said probe comprises a sequence that is complementary to an at least 11 base sequence that is selected from the group consisting of SEQ ID NO:1 and SEQ ID NO:2;
- (b) subjecting said sample and probe to stringent hybridization conditions; and
- (c) detecting hybridization of said probe to said MON863 DNA.

42. A method of determining the zygosity of a plant comprising corn event MON863 DNA, said method comprising:

- (a) contacting a sample comprising said DNA with a first primer pair comprising SEQ ID NO:9 and SEQ ID NO:10, that when used in a first nucleic-acid amplification reaction with corn event MON863 DNA, produces a first amplicon that is diagnostic for corn event MON863;
- (b) performing said first nucleic acid amplification reaction, thereby producing said first amplicon;
- (c) detecting said first amplicon;
- (d) contacting said sample comprising corn DNA with a second primer pair, that when used in a second nucleic-acid amplification reaction with genomic DNA other than event MON863 DNA, produces a second amplicon comprising native corn genomic DNA,

wherein said second primer pair comprises a first primer comprising at least 15 contiguous nucleotides selected from the group of nucleotides set forth in SEQ ID NO:3 from about nucleotide position 267 through about nucleotide 508 and a second primer comprising at least 15 contiguous nucleotides selected from the group of nucleotides complementary to SEQ ID NO:4 from about nucleotide position 361 through about nucleotide position 584;

(e) performing said second nucleic acid amplification reaction, thereby producing said second amplicon;

(f) detecting said second amplicon; and

(g) comparing said first and said second amplicon in a sample,
wherein the zygosity of said plant is determined.